What is claimed is:

Subt A1

1. A method for recovering a monosaccharide selected from the group consisting of rhamnose, arabinose, xylose and mixtures thereof from a solution containing at least two of said monosaccharides by a multistep process using chromatographic separation comprising at least one step, where a weakly acid cation exchange resin is used for the chromatographic separation.

2. The method of claim 1 comprising feeding the solution containig a monosaccharide selected from the group consisting from rhamnose, arabinose, xylose and mixtures thereof into a chromatographic column containing a weakly acid cation exchange resin, eluting said column with an eluant, and separating and recovering the rhamnose fraction.

3. The method of claim 1 wherein also a strongly acid cation exchange resin is used in a chromatographic column.

4. The method of claim 1 wherein the multistep process further comprises steps selected from the group consisting of crystallization, filtration, evaporation, precipitation and ion exchange.

5. The method of claim 1 where the monosaccharide recovered is rhamnose.

6. The method of claim 5 wherein the rhamnose recovered is L-rhamnose.

7. The method of claim 5 wherein the solution containing rhamnose is a xylose process stream or side stream.

8. The method of claim 5 wherein an arabinose rich fraction is separated and recovered.

9. The method of claim 8 wherein the arabinose to be recovered is L-arabinose.

10. The method of claim 5 wherein a xylose rich fraction is separated and recovered.

11. The method of claim 10 wherein the xylose to be recovered is D-xylose.

12. The method of claim 1 wherein the weakly acid cation exchange resin is an acrylic resin.

13. The method of claim 12 wherein the acrylic resin is derived from the group consisting of methyl acrylate, ethyl acrylate, buthyl acrylate methyl methacrylate and acrylonitrile and acrylic acids and mixtures thereof.

14. The method of claim 13 wherein the resin is in the form selected from the group consisting of Na^+, Mg^{2+} , H^+ and Ca^{2+}.

15. The method of claim 14 wherein the resin is in Na^+ form.

16. The method of claim 12 wherein the resin is crosslinked with divinyl benzene (DVB).

17. The method of claim 16 wherein the crosslinking degree of the resin is 3 to 8 % by weight.

18. The method of claim 1 wherein the eluant is water.

19. The method of claim 1 comprising feeding the solution containing rhamnose to a first chromatographic column and then feeding a fraction from the first chromatographic column to a second chromatographic column, both columns containing a weakly acid cation exchange resin.

20. The method of claim 19 comprising feeding a fraction from the second chromatographic column to a third chromatographic column containing a strongly acid cation exchange resin and feeding a fraction from the third chromatographic column to a fourth chromatographic column containing strongly acid cation exchange resin.

21. The method of claim 1 comprising feeding the solution containig rhamnose to a first chromatographic column containing a strongly acid cation exchange resin and then feeding a fraction from the first chromatographic column to a second chromatographic column containing a weakly acid cation exchange resin.

22. The method of claim 21 comprising feeding a fraction from the second chromatographic column to a third chromatographic column containing a weakly acid cation exchange resin.

23. The method of claim 19 comprising feeding a fraction from the second chromatographic column to a third chromatographic column containing a strongly acid cation exchange resin.

24. The method of claim 21 comprising feeding a fraction from the second chromatographic column to a third chromatographic column containing a strongly acid cation exchange resin.

25. The method of claim 19 wherein prior to feeding the fraction to the next chromatographic column said fraction is concentrated by evaporation.

26. The method of claim 21 wherein prior to feeding the fraction to the next chromatographic column said fraction is concentrated by evaporation.

27. The method of claim 1 wherein the temperature of the eluant is between 10 °C and 95 °C.

28. The method of claim 27 wherein the temperature of the eluant is between 55 °C and 85 °C.

29. The method of claim 1 wherein the particle size of the weakly acid cation exchange resin is 10 to 2000 µm.

30. The method of claim 29 wherein the particle size of the weakly acid cation exchange resin is 100 to 400 µm.

31. The method of claim 1 wherein the pH of the feed solution is 1 to 10.

32. The method of claim 31 wherein the pH of the feed solution is 2 to 4.

33. The method of claim 31 wherein the pH of the feed solution is 5 to 10.

34. The method of claim 19 comprising recovering from the first and the second chromatographic column xylose and arabinose.

35. The method of claim 21 comprising recovering from the first and the second chromatographic column xylose and arabinose.

36. The method of claim 1 comprising isolating arabinose by crystallization.

37. The method of claim 19 comprising recovering rhamnose from the second and/or the third chromatographic column.

38. The method of claim 21 comprising recovering rhamnose from the second and/or the third chromatographic column.

39. The method of claim 1 comprising isolating L-rhamnose by crystallization.

40. The method of claim 1 comprising isolating L-rhamnose in the form of monohydrate.

41. The method of claim 1 comprising isolating xylose by crystallization.

42. The method of claim 1 wherein the method is a batch process.

43. The method of claim 1 wherein the rhamnose fraction is collected before the other saccharides.

44. The method of claim 1 wherein rhamnose fraction is collected after the other sacharides.

45. The method of claim 1 wherein rhamnose and arabinose are collected together.

46. The method of claim 1 wherein the chromatographic separation method is a simulated moving bed system.

47. The method of claim 46 wherein the simulated moving bed system is sequential.

48. The method of claim 47 wherein the simulated moving bed system is continuous.

49. The method of claim 46 wherein at least one column or a part of a column contains a strongly acid cation exchange resin and at least one column contains a weakly acid cation exchange resin.